Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

May

2005

Prepared by
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GENERAL BULLETIN INFORMATION

The National Centre for Geophysical Research is a governmental agency established 1975 in Lebanon by the National Council for Scientific Research (CNRS). The mission of the Centre, among other assignments, is the monitoring of seismic activity within the national territory. Currently, the national seismic network is under deployment; it has been officially registered as GRAL, an acronym for Geophysical Research Arrays of Lebanon. Station coordinates and status are given below.

Since 1993, the Centre has been participating in a regional initiative by the UNESCO and the USGS known as RELEMR, i.e. Reducing Earthquake Losses in the Eastern Mediterranean Region.

Within this framework, the Centre routinely contributes to the database set up for this purpose and maintained by the Euro-Mediterranean Seismological Centre (EMSC). For coherence, the Centre has adopted the recommended seismic analysis system SEISAN developed by Jens Havskov and Lars Ottemoller from the University of Bergen, Norway.

The localization program currently used for locating earthquakes is Hypocenter (Lienert et al.,1986). Plane parallel layers are assumed for local and regional events, while the IASPEI travel time tables are used for distant events.

The velocity model used for all local and regional events is the one currently adopted by the RELEMR initiative.

P-wave velocity (km/sec)	**depth to top of layer (km)**
6.2	**0.0**
6.8	**14.0**
8.05	**34.0**
8.25	**50.0**
8.5	**80.0**

Magnitudes are calculated from the coda duration. The coda wave magnitude is estimated via the formula:

Mc = 0.08 + 1.63 * log10(T) + 0.0009 * D.

where T is the coda duration (sec) and D is the epicentral distance (km). The coefficients above were adopted at the outset of our Centre in 1980 and thus are still in use for the sake of continuity.

All available coda values are used for magnitude calculations. No station corrections are used for either travel times or magnitudes calculations. The Vp/Vs velocity ratio used in both layered models above is 1.74.

As a general policy, neither depths, nor epicenters, are fixed unless stated otherwise since this might restrict later use of the data. Consequently, some event locations might be unrealistic such as zero depth earthquakes or teleseismic locations off by 1000 km. However, the locations are based on the available data and reflect the localization procedure and the models used.

STATIONS USED

The stations listed below are operated by the National Centre for Geophysical Research. They constitute the basic setup of the National Seismic Network of Lebanon.

However, readings from other cooperating agencies are also used in locating the events and thus more stations may appear in the event lists than in the station list; it is worth mentioning the systematic use of arrival times from the Cypriot seismic network CSS in order to constrain events corresponding to an active zone off the Lebanese shorelines.

STATION	LATITUDE	LONGITUDE	HEIGHT(m)	NAME	COMMENTS
BHL	3354.25N	3539.25E	1000	BHANNES	Opened May 1980
HWQ	3416.68N	3556.78E	1161	HAWQA	Opened Jan 2001
MATL	3329.32N	3519.78E	5	MATARIH	Opened Nov 2000
FKH	3414.13N	3624.11E	1170	FAKEHEH	Opened Dec 2004
RCY	3329.08N	3549.13E	1360	RACHAYA	Scheduled 2003
DWR	3323.13N	3524.08E	420	DWEIR	Scheduled 2003

MACROSEISMIC DATA

Macroseismic data, if available, are included in the bulletin.

MONTHLY EPICENTER MAPS

Maps will be found on the last page.

ELECTRONIC PUBLICATION

This provisional bulletin is available for download in pdf format on:
http://www.cnrs.edu.lb/grdownload.html

REFERENCES

Havskov, J. and Ottemoller, L.(2001). SEISAN: The Earthquake Analysis Software. -version 7.2- Institute of Solid Earth Physics, University of Bergen. http://www.ifjf.uib.no/seismo/software/seisan.html

Lienert, B.R., Berg, E. and Frazer, L.N.(1986). Hypocenter: An earthquake location method using centered, scaled, and adaptively least squares. Bull. Seism. Soc. Am., 76., pp 771-783.

Abbreviations:

TIME:	Origin time in UTC (hr. min. and sec.) or data file onset time if event is not located.
LAT:	Latitude of epicenter
LON:	Longitude of epicenter
DEPTH:	Focal depth in kilometer (trailing F indicates fixed depth)
AGENCY:	GRL throughout the bulletin, aka. Geophysical Research Lebanon
MAGNITUDES:	Up to 3 different magnitudes can be given followed by type and and reporting agency, e.g. 3.1 MC GRL - coda magnitude calculated according to GRL standard parameters.
RMS:	Root mean square value of travel time residuals
STAT:	Station code
CO:	Component; S:short period, L:long period, B:broadband.
DIST:	Epicenter distance (km)
AZI:	Azimuth from source to station
PHAS:	Phase; The first letter characterizes onset E(mergent) or I(mpulsive)
P:	Polarity (C for compression, D for dilatation)
HR:	Hour
MN:	Minute
SECON:	Seconds
TRES:	Residual (seconds)
CODA:	Signal duration in seconds
AMPL:	Ground Amplitude (0.5*(peak to peak)), (nm) at period PERI
PERI:	Period where amplitude is measured
BAZ:	Back azimuth (station to event)
ARES:	Back azimuth residual
VELO:	Apparent phase velocity (km/sec)
WT:	Weight of phase in the location
*:	An asterisk before the phase arrival time implies a potential timing error. If an S phase is read, differential S-P times will be used in the hypocenter location.

May 1 2005 Hour: 10:17 40.4 Lat: 33.56N Lon: 36.65E Depth: 15 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	99.72	293	IPG		1017	55.49	-0.6				109	-3	16.1	1.0
BHL	BN	99.72	293	ISG		1018	7.43	-0.3							1.0
HWQ	SZ	102.8	321	IPG		1017	56.99	0.4	57						1.0
HWQ	SN	102.8	321	ISG		1018	8.96	0.5							1.0

May 1 2005 Hour: 18:58 54.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		19 2	55.25								

May 2 2005 Hour: 10:25 0.2 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1026	12.75								
BHL	SZ			IPG		1026	15.17								
HWQ	SE			ISG		1026	25.28								
BHL	SN			ISG		1026	27.30								

May 2 2005 Hour: 11:42 1.3 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1143	2.57								
HWQ	SN			ISG		1143	11.32								
BHL	SE			ISG		1143	24.96								

May 4 2005 Hour: 19: 1 8.4 Lat: 34.32N Lon: 36.57E Depth: 9 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.9 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	18.06	238	IPG		19 1	12.45	0.7	33						1.0
FKH	SN	18.06	238	ISG		19 1	13.81	-0.4							1.0
HWQ	SZ	57.38	265	IPG		19 1	18.70	0.9							1.0
HWQ	SE	57.38	265	ISG		19 1	24.24	-0.5							1.0
BHL	SZ	96.21	241	IPG		19 1	22.40	-1.6							1.0
BHL	SN	96.21	241	ISG		19 1	36.47	0.9							1.0

May 5 2005 Hour: 13:53 56.8 Lat: 34.31N Lon: 36.57E Depth: 0 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 1.3 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	17.58	243	IPG		1353	58.97	-0.7	30						1.0
FKH	SN	17.58	243	ISG		1353	59.60	-2.2							1.0
HWQ	SZ	57.63	267	IPG		1354	5.82	-0.3							1.0
HWQ	SE	57.63	267	ISG		1354	13.22	0.2							1.0
BHL	SZ	95.77	242	IPG		1354	13.32	1.0							1.0
BHL	SE	95.77	242	ISG		1354	25.68	2.0							1.0

May 5 2005 Hour: 18:35 47.0 Lat: 34.54N Lon: 35.68E Depth: 31 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 1.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	37.84	140	IPG		1835	52.67	-2.0							1.0
HWQ	SE	37.84	140	ISG		1836	1.54	1.2							1.0
BHL	SE	70.60	182	ISG		1836	7.71	0.0							1.0
FKH	SZ	74.23	117	IPG		1836	1.46	2.0	30						1.0
FKH	SE	74.23	117	ISG		1836	7.44	-1.2							1.0

May 7 2005 Hour: 11:53 26.1 Lat: 34.56N Lon: 36.69E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 1.8 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	44.95	216	IPG		1153	31.45	-1.9	58			24	-10	20.8	1.0
FKH	SN	44.95	216	ISG		1153	37.00	-1.7							1.0
HWQ	SZ	75.08	245	IPG		1153	40.08	1.9							1.0
HWQ	SE	75.08	245	ISG		1153	48.78	1.6							1.0

May 7 2005 Hour: 13:12 1.0 **Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SE			ISG		1313	15.82								
BHL	SZ			IPG		1313	16.53								
BHL	SN			ISG		1313	25.83								
HWQ	SZ			IPG		1313	6.11		43						

May 7 2005 Hour: 16:17 45.0 Lat: 33.77N Lon: 36.80E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL **Rms: 0.9 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	63.24	325	IPG		1617	53.82	-1.4	57						1.0
FKH	SE	63.24	325	ISG		1618	3.05	0.3							1.0
HWQ	SZ	96.65	306	IPG		1618	2.10	1.5							1.0
HWQ	SE	96.65	306	ISG		1618	11.99	-0.1							1.0
BHL	SN	106.7	278	ISG		1618	14.61	-0.3							1.0

May 7 2005 Hour: 17:41 8.6 Lat: 33.62N Lon: 35.87E Depth: 0 Agency: REL Local
Magnitudes: 2.5MC REL **Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	36.85	328	IPG		1741	14.68	0.2							1.0
BHL	BE	36.85	328	ISG		1741	18.77	-0.1							1.0
MATL	SZ	52.10	253	IPG		1741	17.04	0.1							1.0
HWQ	SZ	72.96	6	IPG		1741	20.03	-0.3	27						1.0
HWQ	SE	72.96	6	ISG		1741	29.29	0.2							1.0

May 8 2005 Hour: 10:13 6.1 **Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1013	53.38								
BHL	SZ			IPG		1013	53.17								
HWQ	SN			ISG		1014	6.17								
BHL	SN			ISG		1014	4.40								

May 8 2005 Hour: 10:14 25.2 Lat: 33.50N Lon: 36.51E Depth: 15 Agency: REL Local
Magnitudes: 2.8MC REL **Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	90.94	300	IPG		1014	39.30	-0.3	41			198	78	30.1	1.0
BHL	SN	90.94	300	ISG		1014	50.46	0.3							1.0
HWQ	SZ	101.0	329	IPG		1014	41.25	0.2							1.0
HWQ	SE	101.0	329	ISG		1014	52.55	-0.2							1.0

May 9 2005 Hour: 1:39 49.5 **Agency: REL Distant**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		141	10.00								

May 9 2005 Hour: 9:12 0.9 **Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		912	50.13								
BHL	SZ			IPG		912	51.86								
HWQ	SE			ISG		913	3.34								
BHL	SN			ISG		913	6.05								

May 9 2005 Hour: 12:10 1.4 **Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1210	30.46								
BHL	SZ			IPG		1210	36.38								
HWQ	SN			ISG		1210	40.94								
BHL	SN			ISG		1210	54.11								

May 9 2005 Hour: 13:41 7.7 Lat: 34.22N Lon: 35.54E Depth: 15 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.2 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	36.60	163	IPG		1341	14.27	0.2	43			54	71	13.3	1.0
BHL	SE	36.60	163	ISG		1341	18.58	-0.2							1.0
HWQ	SZ	38.05	80	IPG		1341	14.38	0.1							1.0
HWQ	SE	38.05	80	ISG		1341	19.18	0.0							1.0

May 9 2005 Hour: 13:57 0.3 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1357	53.35								
HWQ	SE			ISG		1358	22.34								
BHL	SZ			IPG		1357	47.52								
BHL	SN			ISG		1358	13.86								

May 10 2005 Hour: 1: 9 17.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		120	47.40								

May 11 2005 Hour: 9:39 27.6 Lat: 33.91N Lon: 35.16E Depth: 15 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	45.99	91	IPG		939	34.46	-0.9	53			134	-99	18.1	1.0
BHL	SE	45.99	91	ISG		939	41.67	0.6							1.0
MATL	SZ	49.42	161	IPG		939	35.95	0.2							1.0
HWQ	SZ	83.49	61	IPG		939	40.67	-0.2							1.0
HWQ	SE	83.49	61	ISG		939	50.95	0.3							1.0

May 11 2005 Hour: 12:44 0.2 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1245	17.73								
HWQ	SE			ISG		1245	27.75								
BHL	SN			ISG		1245	38.29								

May 11 2005 Hour: 16: 3 1.7 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		16 4	6.92								
HWQ	SE			ISG		16 4	18.92								
BHL	SZ			IPG		16 4	0.63								

May 12 2005 Hour: 8:58 10.6 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EPN		9 1	41.64								
HWQ	SZ			EPN		9 1	34.85								

May 12 2005 Hour: 9:25 3.3 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EPN		927	13.41								
BHL	BZ			EPN		927	21.93								

May 12 2005 Hour: 11: 4 38.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1135	28.54								

May 12 2005 Hour: 15:14 18.9 Lat: 33.75N Lon: 35.82E Depth: 0 Agency: REL Local
Magnitudes: 2.4MC REL Rms: 1.0 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	23.00	317	IPG		1514	22.12	-0.5	27						1.0
BHL	SE	23.00	317	ISG		1514	25.30	-0.1							1.0
MATL	SZ	54.34	238	IPG		1514	28.36	0.7							1.0
HWQ	SZ	59.42	11	IPG		1514	27.05	-1.4							1.0
HWQ	SE	59.42	11	ISG		1514	36.90	1.3							1.0

May 12 2005 Hour: 23: 2 19.3 Lat: 34.13N Lon: 35.54E Depth: 15 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	26.69	157	IPG		23 2	24.12	-0.2	29			109	132	23.5	1.0
BHL	SE	26.69	157	ISG		23 2	27.30	-0.7							1.0
HWQ	SZ	41.00	66	IPG		23 2	26.94	0.6							1.0
HWQ	SE	41.00	66	ISG		23 2	31.86	0.3							1.0

May 13 2005 Hour: 4:31 57.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		433	39.23								

May 14 2005 Hour: 0:38 49.8 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EPN		039	36.54								
BHL	BZ			EPN		039	43.55								

May 14 2005 Hour: 12:32 52.3 Lat: 34.88N Lon: 36.60E Depth: 15 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.4 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	89.52	222	IPG		1233	6.94	0.5	55			60	19	25.1	1.0
HWQ	SN	89.52	222	ISG		1233	16.69	-0.3							1.0
BHL	SZ	138.6	219	IPG		1233	13.21	-0.5							1.0
BHL	SN	138.6	219	ISG		1233	29.78	0.3							1.0

May 14 2005 Hour: 17:48 29.5 Lat: 35.88N Lon: 31.11E Depth: 0 Agency: REL Regional
Magnitudes: 4.0MC REL Rms: 2.1 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
AKMC	SZ	145.7	130	EP		1748	52.40	-0.4							1.0
ALFC	SZ	157.0	120	IP		1748	52.60	-1.9							1.0
PPCY	SZ	157.5	134	EP		1748	54.90	0.3							1.0
SZAC	SZ	203.8	127	EP		1749	00.90	0.0							1.0
MAMC	SZ	206.6	112	EP		1748	58.80	-2.5							1.0
CSS	SZ	225.9	116	EP		1749	00.90	-2.8							1.0
PHNC	SZ	282.4	109	EP		1749	09.50	-1.2							1.0
MATL	SZ	468.8	123	EPN		1749	37.94	4.1							1.0
BHL	BZ	469.5	117	EPN		1749	34.91	0.9							1.0
BHL	BN	469.5	117	SN		1750	20.06	-1.6							1.0
HWQ	SZ	475.3	111	EPN		1749	37.52	2.8	140						1.0
HWQ	SN	475.3	111	SN		1750	25.15	2.2							1.0

May 14 2005 Hour: 18: 2 20.3 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		18 9	11.20								

May 14 2005 Hour: 23:46 47.7 Lat: 35.80N Lon: 31.48E Depth: 15 Agency: REL Regional
Magnitudes: 4.9MC REL Rms: 1.0 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
AKMC	SZ	115.3	138	EP		2347	05.70	0.1							1.0
ALFC	SZ	124.1	125	EP		2347	06.60	-0.3							1.0
PPCY	SZ	128.3	142	EP		2347	08.10	0.6							1.0
SZAC	SZ	172.3	132	EP		2347	14.40	0.8							1.0
MAMC	SZ	172.5	113	EP		2347	12.90	-0.7							1.0
CSS	SZ	192.2	118	EP		2347	14.60	-1.5							1.0
PHNC	SZ	248.2	110	EP		2347	22.30	-0.7							1.0
BHL	BZ	435.8	118	EPN		2347	45.79	-0.6	549						1.0
BHL	BE	435.8	118	SN		2348	27.85	-2.0							1.0
MATL	SZ	436.2	125	EPN		2347	44.78	-1.5							1.0
HWQ	SZ	441.1	111	EPN		2347	48.05	1.0							1.0
HWQ	SN	441.1	111	SN		2348	31.53	0.5							1.0
FKH	SZ	481.6	110	EPN		2347	53.93	1.8							1.0
FKH	SE	481.6	110	SN		2348	41.58	1.8							1.0

May 15 2005 Hour: 5: 3 47.5 Lat: 33.83N Lon: 35.57E Depth: 18 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.8 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	10.80	45	IPG		5 3	50.12	-0.9	62						1.0
BHL	SE	10.80	45	ISG		5 3	53.88	0.3							1.0
MATL	SZ	44.52	210	IPG		5 3	55.88	0.8							1.0
HWQ	SZ	60.07	35	IPG		5 3	56.62	-0.7							1.0
HWQ	SE	60.07	35	ISG		5 4	5.75	1.1							1.0
FKH	SZ	88.58	60	IPG		5 4	0.36	-1.2							1.0
FKH	SE	88.58	60	ISG		5 4	12.57	0.6							1.0

May 15 2005 Hour: 10:17 0.7 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EPN		1018	19.99								
HWQ	SE			SN		1019	4.16								
BHL	BZ			EPN		1018	17.71								
BHL	BE			SN		1018	58.96								

May 15 2005 Hour: 10:54 28.5 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EPN		1056	0.31								
BHL	BZ			EPN		1056	27.80								

May 15 2005 Hour: 19:14 59.7 Lat: 34.25N Lon: 35.90E Depth: 64 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 1.3 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	5.181	56	IPG		1915	9.71	0.9							1.0
HWQ	SN	5.181	56	ISG		1915	14.42	-1.2							1.0
BHL	BZ	44.73	211	IPG		1915	12.35	1.7	29						1.0
BHL	BE	44.73	211	ISG		1915	19.26	0.5							1.0
MATL	SZ	99.73	212	IPG		1915	14.11	-1.8							1.0

May 16 2005 Hour: 3:47 32.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		413	57.58								

May 16 2005 Hour: 4:26 56.5 Lat: 35.18N Lon: 29.67E Depth: 0 Agency: REL Regional
Magnitudes: 4.3MC REL Rms: 0.6 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	553.7	108	EPN		428	12.29	0.9							1.0
BHL	SZ	567.4	103	EPN		428	12.71	-0.4							1.0
BHL	SE	567.4	103	SN		429	8.95	-0.9							1.0
HWQ	SZ	583.6	98	EPN		428	14.84	-0.3	175						1.0
HWQ	SE	583.6	98	SN		429	13.93	0.6							1.0
FKH	SZ	625.6	98	EPN		428	20.24	-0.2							1.0
FKH	SE	625.6	98	SN		429	22.82	0.4							1.0

May 16 2005 Hour: 6:17 2.4 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		617	51.03								
HWQ	SN			ISG		617	57.88								
BHL	SZ			IPG		617	49.23								
BHL	SN			ISG		617	55.22								

May 16 2005 Hour: 10: 6 28.4 Lat: 34.41N Lon: 34.65E Depth: 15 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.6 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	108.1	121	IPG		10 6	44.70	-0.6	55			167	-99	93.4	1.0
BHL	SE	108.1	121	ISG		10 6	58.11	0.3							1.0
HWQ	SZ	119.8	97	IPG		10 6	47.86	0.8							1.0
HWQ	SN	119.8	97	ISG		10 7	0.32	-0.5							1.0

May 16 2005 Hour: 13:33 37.5 Lat: 34.39N Lon: 36.88E Depth: 0 Agency: REL Local
Magnitudes: 3.1MC REL Rms: 0.8 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	47.73	249	IPG		1333	44.57	-0.7	63						1.0
FKH	SN	47.73	249	ISG		1333	49.83	-1.1							1.0
HWQ	SZ	87.32	262	IPG		1333	52.26	0.6							1.0
HWQ	SE	87.32	262	ISG		1334	2.03	0.0							1.0
BHL	SN	125.7	245	ISG		1334	13.97	1.1							1.0

May 16 2005 Hour: 14:20 17.6 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ			EPN		1425	27.74								
BHL	SZ			EPN		1425	28.07								
HWQ	SZ			EPN		1425	30.23								

May 17 2005 Hour: 10: 7 1.2 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		10 8	31.89								
BHL	SZ			IPG		10 8	27.29								
HWQ	SE			ISG		10 8	44.16								
BHL	SE			ISG		10 8	43.38								

May 17 2005 Hour: 10:59 1.2 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		11 0	10.62								
BHL	SZ			IPG		11 0	3.93								
HWQ	SE			ISG		11 0	20.66								
BHL	SN			ISG		11 0	11.25								

May 18 2005 Hour: 10:38 10.6 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1046	49.19								

May 18 2005 Hour: 11:33 48.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1147	39.92								

May 19 2005 Hour: 1:33 48.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2 5	32.98								

May 19 2005 Hour: 10:23 33.9 Lat: 33.54N Lon: 36.54E Depth: 32 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	78.11	350	IPG		1023	46.79	-0.1							1.0
FKH	SE	78.11	350	ISG		1023	56.81	0.3							1.0
BHL	BZ	91.83	296	IPG		1023	47.98	-0.8	44						1.0
BHL	BE	91.83	296	ISG		1023	59.67	-0.1							1.0
HWQ	SZ	98.68	326	IPG		1023	49.48	-0.3							1.0
HWQ	SN	98.68	326	ISG		1024	1.41	-0.1							1.0
MATL	SZ	113.1	267	IPG		1023	52.71	1.0							1.0

May 19 2005 Hour: 11:16 44.9 Lat: 34.29N Lon: 36.93E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.4 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	49.16	263	IPG		1116	52.94	0.2	59						1.0
FKH	SN	49.16	263	ISG		1116	58.18	-0.5							1.0
HWQ	SZ	90.70	269	IPG		1116	59.08	-0.4							1.0
HWQ	SE	90.70	269	ISG		1117	10.79	0.5							1.0
BHL	SZ	125.5	250	IPG		1117	5.32	0.2							1.0

May 20 2005 Hour: 10:21 5.9 Lat: 33.88N Lon: 35.91E Depth: 15 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.2 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	24.23	277	IPG		1021	10.66	0.1				147	50	26.3	1.0
BHL	BE	24.23	277	ISG		1021	14.09	0.1							1.0
HWQ	SZ	44.48	4	IPG		1021	13.55	0.1	33			275	91	43.5	1.0
HWQ	SE	44.48	4	ISG		1021	18.61	-0.4							1.0

May 21 2005 Hour: 16:39 56.7 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1641	5.07								

May 23 2005 Hour: 12:37 0.4 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1237	45.02								
HWQ	SN			ISG		1237	55.54								
BHL	SZ			IPG		1237	52.18								

May 24 2005 Hour: 9:40 9.7 Lat: 35.63N Lon: 39.47E Depth: 0 Agency: REL Regional
Magnitudes: 4.3MC REL Rms: 0.8 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BSHR	SZ	25.27	176	EPG		940	13.78	0.0							1.0
KFRA	SZ	246.8	260	EPN		940	47.11	0.6							1.0
FKH	SZ	320.0	242	EPN		940	54.65	-1.0							1.0
FKH	SE	320.0	242	SN		941	30.02	0.4							1.0
HWQ	SZ	355.0	246	EPN		940	59.59	-0.4	238						1.0
HWQ	SE	355.0	246	SN		941	36.07	-1.1							1.0
BHL	BZ	398.2	242	EPN		941	4.74	-0.6							1.0
BHL	BE	398.2	242	SN		941	47.13	0.7							1.0
MATL	SZ	447.9	239	EPN		941	12.69	1.3							1.0

May 25 2005 Hour: 13:44 0.7 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SN			ISG		1345	16.71								
BHL	SZ			IPG		1345	19.54								
BHL	SE			ISG		1345	31.68								
HWQ	SZ			IPG		1345	11.24								

May 28 2005 Hour: 10:14 0.5 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SN			ISG		1015	4.73								
HWQ	SZ			IPG		1014	55.76								
HWQ	SN			ISG		1015	6.91								
BHL	SZ			IPG		1014	53.87								

May 29 2005 Hour: 3: 8 16.7 Lat: 33.23N Lon: 35.21E Depth: 28 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.6 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	30.54	21	IPG		3 8	23.59	0.4							1.0
BHL	BZ	85.18	29	IPG		3 8	29.99	-0.5	39						1.0
BHL	BE	85.18	29	ISG		3 8	39.89	-0.9							1.0
HWQ	SZ	134.6	30	IPG		3 8	37.71	0.0							1.0
HWQ	SN	134.6	30	ISG		3 8	54.10	0.9							1.0

May 29 2005 Hour: 13: 7 4.9 Lat: 34.97N Lon: 36.01E Depth: 34 Agency: REL Local
Magnitudes: 3.2MC REL Rms: 0.3 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	76.76	185	IPG		13 7	18.10	0.3	71						1.0
HWQ	SE	76.76	185	ISG		13 7	27.24	-0.1							1.0
BHL	BZ	122.5	196	IPG		13 7	23.73	-0.5							1.0
BHL	BN	122.5	196	ISG		13 7	38.67	0.1							1.0
MATL	SZ	175.7	201	IPG		13 7	32.15	0.2							1.0

May 29 2005 Hour: 21:37 58.7 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EPN		2142	37.63								
HWQ	SZ			EPN		2142	31.92								
BHL	BE			SN		2144	20.36								

May 29 2005 Hour: 22: 2 23.2 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		22 4	12.82								

May 30 2005 Hour: 9:54 1.1 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			IPG		955	30.79								
FKH	SN			ISG		955	37.83								
HWQ	SZ			IPG		955	39.15								
HWQ	SN			ISG		955	47.69								

May 30 2005 Hour: 12:22 1.3 Lat: 34.25N Lon: 35.54E Depth: 13 Agency: REL Local
Magnitudes: 2.4MC REL Rms: 0.0 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	37.31	85	IPG		1222	7.75	0.0	24			251	-13	45.9	1.0
HWQ	SE	37.31	85	ISG		1222	12.53	0.0							1.0
BHL	BZ	39.68	165	IPG		1222	7.99	-0.1							1.0
BHL	BN	39.68	165	ISG		1222	13.16	0.0							1.0

May 31 2005 Hour: 22:17 35.7 Lat: 33.71N Lon: 35.50E Depth: 0 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.6 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	25.80	33	IPG		2217	38.99	-0.8	47						1.0
BHL	BE	25.80	33	ISG		2217	42.55	-0.4							1.0
MATL	SZ	29.24	213	EP		2217	40.33	-0.1							1.0
HWQ	SZ	75.26	33	IPG		2217	48.87	1.1							1.0
HWQ	SE	75.26	33	ISG		2217	57.01	0.2							1.0

Epicentral Map of Lebanon

MAY 2005

Magnitudes

- Ml = 2
- Ml = 3
- Ml = 4
- Ml = 5